Results:

Normal individuals	Control	I-LOCM	NI-LOCM
PA-CD63 (%)	1.5 ± 0.4	2.0 ± 0.4	43.6 ± 8.7[†§]
PMP-7H2 (%)	9.6 ± 1.2	31 ± 0.5[†]	41 ± 0.6[†]
Thrombus area (mm^2)	0.033 ± 0.004	0.001 ± 0.001[†]	0.002 ± 0.001[†]
CAD patients			
PA-CD63 (%)	3.4 ± 1.0	2.3 ± 1.1	3.5 ± 0.3
PMP-7H2 (%)	10.7 ± 1.5	12.2 ± 2.9	8.2 ± 1.1
Thrombus area (mm^2)	0.047 ± 0.010	0.036 ± 0.027	0.029 ± 0.002[†]

Mean ± SEM. [†]p < 0.05 vs control. [§]p < 0.05 I vs NI

Conclusion: Although only a high concentration of NI-LOCM leads to profound platelet degranulation, both I and NI LOCM exert a significant anticoagulant effect by reducing platelet-derived microparticles and platelet thrombus formation. Except for a mild inhibitory effect on platelet thrombus formation these in vitro effects are not observed in patients with CAD undergoing coronary angiography perhaps due to rapid dilution of contrast media.

1140 Ultrasound and Doppler Assessment of Coronary Interventions

Tuesday, March 31, 1998, 3:00 p.m.–5:00 p.m.
Georgia World Congress Center, West Exhibit Hall Level
Presentation Hour: 3:00 p.m.–4:00 p.m.

1140-98 Successful Directional Atherectomy of de Novo Coronary Lesions Assessed With Three-dimensional Intravascular Ultrasound and Angiographic Follow-up

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Background: Histopathologic and intravascular ultrasound (IVUS) data have recently indicated that arterial wall shrinkage (inadequate compensatory enlargement) occurs and contributes to the development of significant coronary lesions. This may have implications for the results of plaque-ablative techniques.

Methods: Three-dimensional IVUS and coronary angiograms were acquired in 46 patients before and after successful directional atherectomy procedures. angiographic follow-up was obtained in 42 patients. Group A consisted of lesions with, and B of lesions without arterial wall shrinkage, which was considered present if the vessel cross-sectional area (CSA) at minimum lumen site was smaller than that at distal reference.

Results: (1) At minimum lumen site, both vessel and plaque CSA were smaller in group A ($p < 0.001$). There was no difference in lesion length, but vessel and plaque volume were significantly smaller in group A ($p < 0.02$). (2) Both groups showed similar results in post-intervention minimal lumen CSA and CSA plaque burden (= plaque CSA/vessel CSA) (6.4 ± 1.5 mm^2 vs. 6.9 ± 2.2 mm^2, and 58.7 ± 6.5% vs. 61.2 ± 8.8%, NS). There were no significant angiographic differences both before and after the intervention. (3) At 6-month follow-up, the angiographic minimal lumen diameter and the reference diameter were significantly smaller in group A than in B (1.71 ± 0.47 mm vs. 2.14 ± 0.73 mm, $p < 0.03$, and 2.97 ± 0.29 mm vs. 3.39 ± 0.75 mm, $p < 0.02$). A diameter stenosis ≥50% was more frequently found in group A than in B (33% vs. 18.5%, NS).

Conclusions: Lesions with arterial wall shrinkage had less favorable angiographic long-term results, despite primary angiographic success. Selection of lesions with advantageous adaptive remodeling status, based on intravascular ultrasound prior to the intervention may improve the long-term outcome of directional atherectomy.

1140-99 Could Doppler Guided Coronary Angioplasty Be an Alternative to Systematic Stenting: A Prospective Study

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Background: Event free survival after coronary angioplasty seems to be related to coronary reserve and to residual stenosis (Debate 1).

Methods: In order to precise the respective place of stent and Doppler wire in angioplasty we investigated 59 pts (aged 58 ± 11) with a single lesion dilatation (28 LAD, 11 LCX, 22 RCA). Stenosis (MLD) and CFR (Flowire, IC 18 μg adenosine) were measured at baseline, after the procedure and at 6 ± 2 month. The initial procedure was stopped when the distal CFH was >2.2 and the residual stenosis was <35%. This was obtained in 32 pts with balloon alone (PTCA) and required a single stent implantation the remaining 27 cases.

Results. The angiographic restenosis rate was 35 and 36% (p = ns) in the PTCA and the stent group respectively

	Base		Post		6 month	
	MLD	CVR	MLD	CVR	MLD	CVR
PTCA	0.8 ± 0.3	1.8 ± 0.8	2.3 ± 0.6[‡]	2.5 ± 0.4[‡]	1.8 ± 0.8[§]	2.8 ± 1
Stent	0.9 ± 0.4	1.9 ± 0.5	2.9 ± 0.5[‡]	3 ± 0.6[‡]	2 ± 0.1[‡]	2.8 ± 0.9
p ptca/stent	ns	ns	0.03	0.05	ns	ns

[‡] p < 0.01, [§] p < 0.001 Post vs base and 6 month vs post

Conclusion: Long term physiological and angiographic follow-up of successful Doppler guided PTCA does not differ from the stent group. Thus physiologically guided coronary angioplasty is an alternative to stentomania.

1140-100 Should we Stent all the Patients? Preliminary Answer From the Multicenter Randomized FROST Study

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Background: the ever increasing use of stents carries some costs and risks. DEBATE-1 suggested that coronary velocity reserve (CVR) data and angiographic analysis may identify a subset of Pts who have excellent follow-up without stenting. The French Randomized Optimal STenting (FROST) study aims at comparing the outcome of systematic stenting to angiography and CVR-guided stenting.

Methods: Pts with short (< 15 mm) stenoses of large (≥3 mm) vessels suitable for PTCA and amenable to stenting were randomly assigned to systematic stenting using Palmaz-Schatz stents (PS-153, Cordis) (Group 1) or to CVR-guided PTCA using a doppler guidewire (Group 2). In the latter group, after successful PTCA, CVR is measured and quantitative angiography performed. Stents are implanted only in Pts with CVR < 2.2 and/or residual stenosis ≥35%. In-hospital and 6-month clinical outcome (death, myocardial infarction, re-PTCA, bypass surgery, functional status) and 6-month quantitative angiographic follow-up are collected in all Pts. Randomization of 250 Pts is planned.

Results: From November 1996 to September 1997, 161 Pts have been randomized in 16 university hospitals. PTCA was successful in 100% of group 1 Pts. In group 2, stenting was eventually required in 49.5% of the Pts. In-hospital outcome is similar in both groups. Final in-hospital results will be presented.

Conclusion: Attempts to «physiologically» guide PTCA using CVR and quantitative angiography avoided the use of stents in half the Pts compared to systematic stenting, with a similar in-hospital outcome. This may result in substantial savings and reduced complications.

1140-101 The Incidence of Peri-stent Abnormalities Following Stent Optimization: An Intravascular Ultrasound Study

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Previous studies have shown that in-stent restenosis often occurs at stent edges, possibly related to reference segment atherosclerosis and associated vessel injury, including stent edge dissections. To assess the prevalence and clinical significance of reference segment atherosclerosis and edge dissections, we performed a pooled analysis of the Stanford quantitative coronary ultrasound core laboratory database, incorporating several multicenter stent trials. 1049 Palmaz-Schatz stents deployed in 874 lesions (RCA 300, LAD 355, LCX 132, SVG 73, others 14) were analyzed. In all protocols intravascular ultrasound (IVUS) images were obtained after optimal stent deployment using high pressure. The following IVUS parameters were analyzed: vessel area (VA), lumen area (LA), plaque area (PA), %plaque area (%PA = PA/VA × 100) and the presence of edge dissections. The reference segment was selected visually as the most normal cross section within 10 mm from both stent edges.

Result: Reference segment %PA measured 37.9 ± 12.4% distally and 41.9 ± 11.7% proximally. Only 6.6% of the distal reference segments and 1.9% of the proximal reference segments were normal (%PA < 20%). Major plaque accumulation (%PA > 50%) was seen distally in 15.8%, proximally in 16.6% and in both 0.45%. Dissections at either stent edge were detectable in 137 segments (15.7%).

Conclusion: Approximately 30% of the stented lesions had major plaque accumulation at either or both margins with edge dissections occurring in 16%. These angiographically occult findings may relate to the relatively high occurrence of restenosis at stent margins.

TUESDAY POSTER